

Panasonic®

Operating Instructions CD Stereo System

Model No. **SC-AK450**
SC-AK350
SC-AK250



The illustrations show SC-AK450.

Dear customer

Thank you for purchasing this product.
For optimum performance and safety, please read these instructions carefully.

These operating instructions are applicable to the following systems.

AK450 : indicates features applicable to SC-AK450 only.

AK350 : SC-AK350 only.

AK250 : SC-AK250 only.



| System | SC-AK450 | SC-AK350 | SC-AK250 |
|-----------|----------|----------|----------|
| Main unit | SA-AK450 | SA-AK350 | SA-AK250 |
| Speakers | SB-AK450 | SB-AK350 | SB-AK250 |

SUPPLIED ACCESSORIES

Please check and identify the supplied accessories.

| | |
|------------------------------|---|
| 1 x AC power supply cord | 1 x AM loop antenna |
| 2 x Remote control batteries | 1 x Remote Control |
| 1 x Power plug adaptor | AK450 AK350 (N2QAYB000141) |
| 1 x FM indoor antenna | AK250 (N2QAYB000142) |

Operations in these instructions are described mainly using remote control, but you can perform the operations on the main unit if the controls are the same.

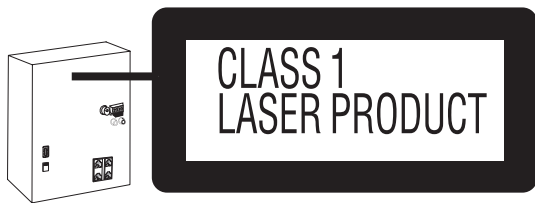
Unless otherwise indicated, illustrations in these operating instructions are of SC-AK450.

Your unit may not look exactly the same as illustrated.

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Before connecting, operating or adjusting this product, please read the instructions completely.
Please keep this manual for future reference.



| | |
|------------------|--|
| CAUTION | — CLASS 1M INVISIBLE LASER RADIATION WHEN OPEN. DO NOT VIEW DIRECTLY WITH OPTICAL INSTRUMENTS. IEC00825-1 +A2) Class 1M |
| VARNING | — KLASS 1M OSYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD. BETRÄKTA EJ STRÅLEN DIREKT GENOM OPTISKT INSTRUMENT. |
| FORSIGTIG | — USYNLIG LASERSTRÅLING KLASSE 1M, NÄR LÅGET ER ÅBENT. UNDGÅ AT SE LIGE PÅ MED OPTISKE INSTRUMENTER. |
| VARO! | — AVATTRESSA OLET ALTTIIN LUOKAN 1M NÄKYMÄTÖNTÄ LASERSÄTELYÄ. ÄLÄ KATSO OPTISELLA LAITTEILLA SUORAN SÄTEEN. |
| VORSICHT | — UNSICHTBARE LASERSTRÄHLUNG KLASSE 1M, WENN ABDECKUNG GEÖFFNET. NICHT DIREKT MIT OPTISCHEN INSTRUMENTEN BETRACHTEN. |
| ATTENTION | — RAYONNEMENT LASER INVISIBLE CLASSE 1M EN CAS D'OUVERTURE. NE PAS REGARDER DIRECTEMENT À L'AIDE D'INSTRUMENTS D'OPTIQUE. |
| 注意 | — ここを開くと不可視レーザー光が出ます。 ビームを見たり、触れたりしないでください。 |
| 注意 | — 打开时有不可见激光辐射。避免光束照射。 GB7241.1-2001GB 类 ROLUS0071 |

Inside of product

CAUTION!

Change the voltage setting to suit the AC voltage in your area. See page 4.

Note that the unit will be seriously damaged or fail to operate correctly if this setting is not made correctly.

THIS UNIT IS INTENDED FOR USE IN TROPICAL CLIMATES.

The socket outlet shall be installed near the equipment and easily accessible.

The mains plug of the power supply cord shall remain readily operable.

To completely disconnect this apparatus from the AC Mains, disconnect the power supply cord plug from AC receptacle.

This product may receive radio interference caused by mobile telephones during use. If such interference is apparent, please increase separation between the product and the mobile telephone.

CAUTION!

THIS PRODUCT UTILIZES A LASER.
USE OF CONTROLS OR ADJUSTMENTS OR PERFORMANCE OF PROCEDURES OTHER THAN THOSE SPECIFIED HEREIN MAY RESULT IN HAZARDOUS RADIATION EXPOSURE.
DO NOT OPEN COVERS AND DO NOT REPAIR YOURSELF. REFER SERVICING TO QUALIFIED PERSONNEL.

WARNING:

TO REDUCE THE RISK OF FIRE, ELECTRIC SHOCK OR PRODUCT DAMAGE,

- DO NOT EXPOSE THIS APPARATUS TO RAIN, MOISTURE, DRIPPING OR SPLASHING AND THAT NO OBJECTS FILLED WITH LIQUIDS, SUCH AS VASES, SHALL BE PLACED ON THE APPARATUS.
- USE ONLY THE RECOMMENDED ACCESSORIES.
- DO NOT REMOVE THE COVER (OR BACK); THERE ARE NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

CAUTION!

- DO NOT INSTALL OR PLACE THIS UNIT IN A BOOKCASE, BUILT-IN CABINET OR IN ANOTHER CONFINED SPACE. ENSURE THE UNIT IS WELL VENTILATED. TO PREVENT RISK OF ELECTRIC SHOCK OR FIRE HAZARD DUE TO OVERHEATING, ENSURE THAT CURTAINS AND ANY OTHER MATERIALS DO NOT OBSTRUCT THE VENTILATION VENTS.
- DO NOT OBSTRUCT THE UNIT'S VENTILATION OPENINGS WITH NEWSPAPERS, TABLECLOTHS, CURTAINS, AND SIMILAR ITEMS.
- DO NOT PLACE SOURCES OF NAKED FLAMES, SUCH AS LIGHTED CANDLES, ON THE UNIT.
- DISPOSE OF BATTERIES IN AN ENVIRONMENTALLY FRIENDLY MANNER.

– If you see this symbol –

Information on Disposal in other Countries outside the European Union




This symbol is only valid in the European Union.

If you wish to discard this product, please contact your local authorities or dealer and ask for the correct method of disposal.

IMPORTANT SAFETY INSTRUCTIONS

Read these operating instructions carefully before using the unit. Follow the safety instructions on the unit and the applicable safety instructions listed below. Keep these operating instructions handy for future reference.

- 1) Read these instructions.
- 2) Keep these instructions.
- 3) Heed all warnings.
- 4) Follow all instructions.
- 5) Do not use this apparatus near water.
- 6) Clean only with dry cloth.
- 7) Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
- 8) Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
- 9) Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
- 10) Only use attachments/accessories specified by the manufacturer.
- 11) Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over. 
- 12) Unplug this apparatus during lightning storms or when unused for long periods of time.
- 13) Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

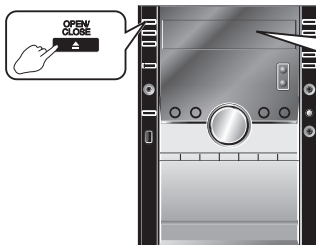
Handling of the disc trays and discs

Not doing the following will cause damage to the unit.

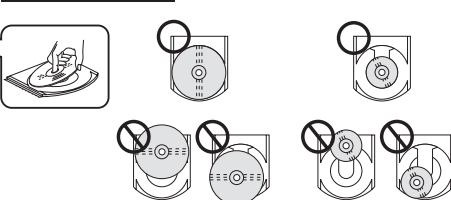
Removing the power plug

- Press [⏻/I, POWER] to turn off the unit and remove the power plug only after all the displays have disappeared.

Tray caution



Inserting a disc



- Always press [▲, OPEN/CLOSE] to insert or remove a disc.
- Do not push or pull out the tray by hand as this will cause an accident.
- Place the disc correctly label-up as shown in the diagram.
- Insert one disc into the tray.

Placement of speakers

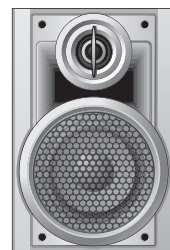
Speakers are designed identically so that no left or right channel orientation is necessary.

AK450



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You cannot take the front net off the speakers.

Use only the supplied speakers.

The combination of the main unit and speakers provide the best sound. Using other speakers can damage the unit and sound quality will be negatively affected.

Note:

- Keep your speakers at least 10mm away from the system for proper ventilation.
- These speakers do not have magnetic shielding. Do not place them near televisions, personal computers or other devices easily influenced by magnetism.
- You can damage your speakers and shorten their useful life if you play sound at high levels over extended periods.
- Reduce the volume in the following cases to avoid damage.
 - When playing distorted sound.
 - When adjusting the sound quality.

Caution

- Use the speakers only with the recommended system. Failure to do so can damage the amplifier and speakers, and can cause fire. Consult a qualified service person if damage occurs or if a sudden change in performance is apparent.
- Do not attach these speakers to walls or ceilings.

Getting started

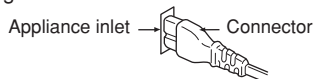
Making the connections

Connect the AC power supply cord only after all other connections have been made.

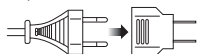
Connect the AC power supply cord.

Insertion of connector

Even when the connector is perfectly inserted, depending on the type of inlet used, the front part of the connector may jut out as shown in the drawing. However there is no problem using the unit.



If the power plug does not fit your socket, use the power plug adaptor (included).



For your reference

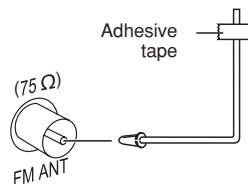
To save power when the unit is not to be used for a long time, unplug it from the household AC outlet. You will need to reset some memory items after plugging in the unit.

Note:

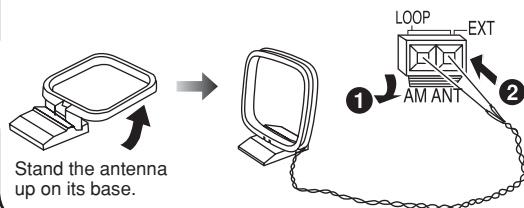
The included AC power supply cord is for use with this unit only. Do not use it with other equipment.

Connect the FM indoor antenna.

Tape the antenna where reception is best.



Connect the AM loop antenna.

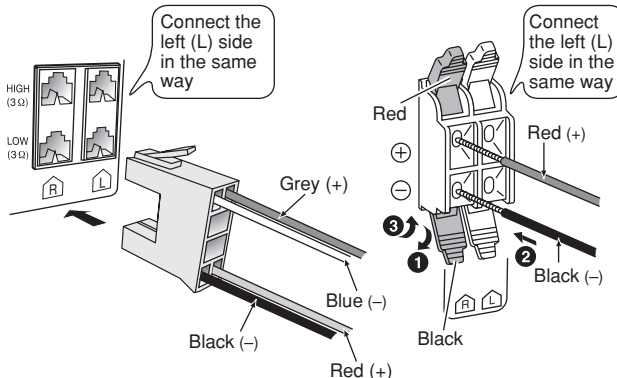


Stand the antenna up on its base.

Connect the speaker cords.

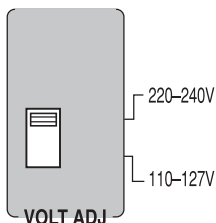
AK450 AK350

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Voltage selector.

Use a flat-head screwdriver to set the voltage selector on the rear panel to the appropriate position for the area in which this system is used.



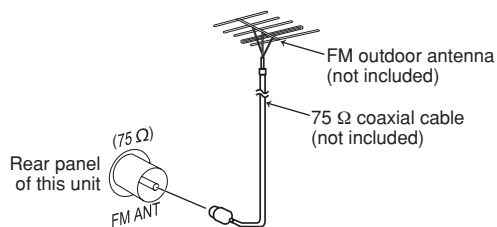
Optional antenna connections

Use outdoor antenna if radio reception is poor.

Note:

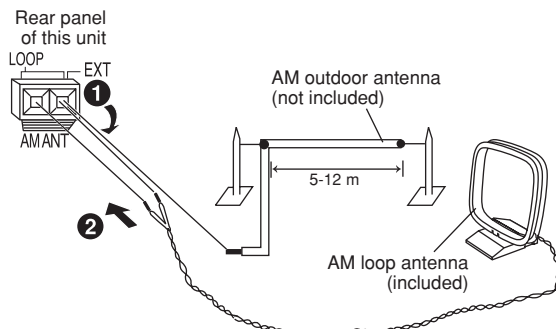
Disconnect the outdoor antenna when the unit is not in use. Do not use the outdoor antenna during a lightning storm.

FM outdoor antenna



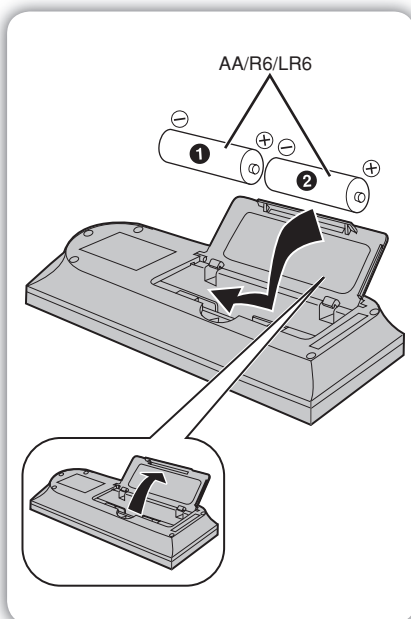
- Disconnect the FM indoor antenna.
- The antenna should be installed by a competent technician.

AM outdoor antenna



- Run a piece of vinyl wire horizontally across a window or other convenient location.
- Leave the loop antenna connected.

Preparing the remote control



■ Batteries

- Insert so the poles (+ and –) match those in the remote control.
- Remove if the remote control is not going to be used for a long period of time. Store in a cool, dark place.
- Replace if the unit does not respond to the remote control even when held close to the front panel.
- Do not use rechargeable type batteries.
- Mishandling of batteries in the remote control can cause electrolyte leakage, which may cause a fire.
- If electrolyte leaks from the batteries, consult your dealer. Wash thoroughly with water if electrolyte comes in contact with any part of your body.

Do not:

- mix old and new batteries.
- use different types of batteries at the same time.
- heat or expose batteries to flame.
- take apart or short circuit the batteries.
- attempt to recharge alkaline or manganese batteries.
- use batteries if the covering has been peeled off.
- put heavy objects on the remote control.
- spill liquids onto the remote control.

■ Use

Aim at the remote control sensor, avoiding obstacles, at a maximum range of 7 m directly in front of the unit.

Refer to page 6 for the remote control sensor position.

DEMO function



When the unit is first plugged in, a demonstration of its functions may be shown on the display.

If the demo setting is off, you can show a demonstration by selecting "DEMO ON".

Press and hold [■, STOP, -DEMO].

The display changes each time the button is held down.

NO DEMO (off) ↔ DEMO ON (on)

While in standby mode, select "NO DEMO" to reduce power consumption.

Note:

DEMO function cannot be turned on when DIMMER is on.

Main unit

Remote control signal sensor

Disc tray open/close (3)

Multiple discs change (8)

Single disc change (9)

AC supply indicator [AC IN]
This indicator lights when the unit is connected to the AC power supply.

1 Standby/on switch [ON/I, POWER] (3, 18)
Press to switch the unit from on to standby mode or vice versa. In standby mode, the unit is still consuming a small amount of power.

Music port jack (15)

AK450 AK350

2 USB play/pause (15)

3 EXT-IN selection (15)

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USB port (15)

4 Tuner (FM/AM) selection (12)

5 Volume control (12)

Record (11, 13, 15 ~ 16)

6 HARD BASS selection (14)

7 Manual EQ and LED flashing selection (14)

Display panel

Disc trays

Disc direct play (8)

Headphone jack
Avoid listening for prolonged periods of time to prevent hearing damage. Plug type: Ø 3.5 mm stereo (not included)

Microphone volume control (13)

Microphone jack (13)

8 Track skip/search, tape fast-forward/rewind, tune/preset channel selection, time adjustment (8 ~ 13, 15)

9 Disc play/pause (8)

10 Tape play (11)

Manual EQ adjustment (14)

Cassette deck open (11)

Demonstration, stop (5, 11)

Cassette holder (11)

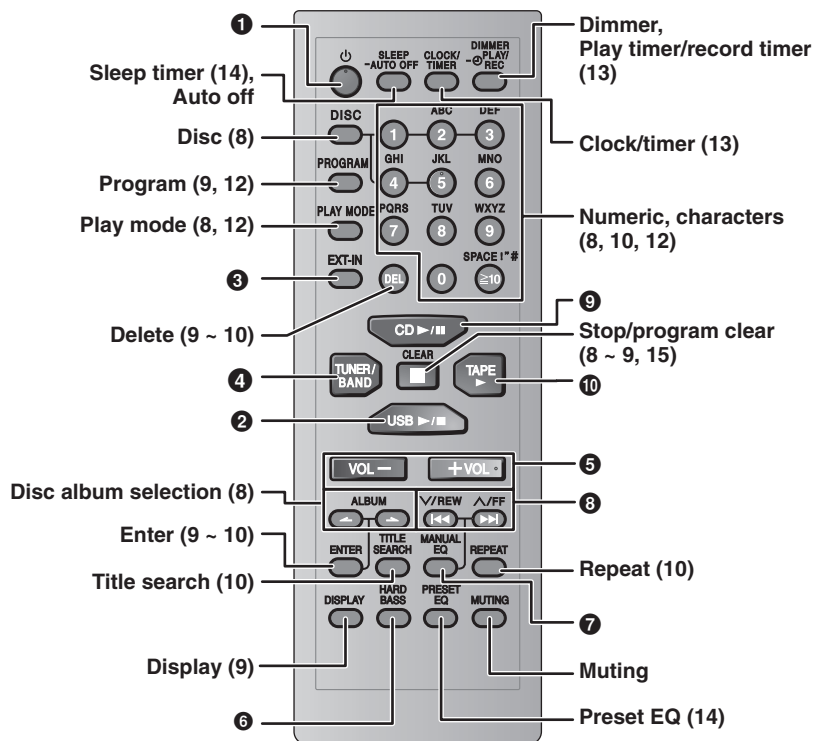
MANUAL EQ

- Press and hold [MANUAL EQ] to turn on LED flashing.
 - Press and hold [MANUAL EQ] again to turn off.
- (Note → page 14)

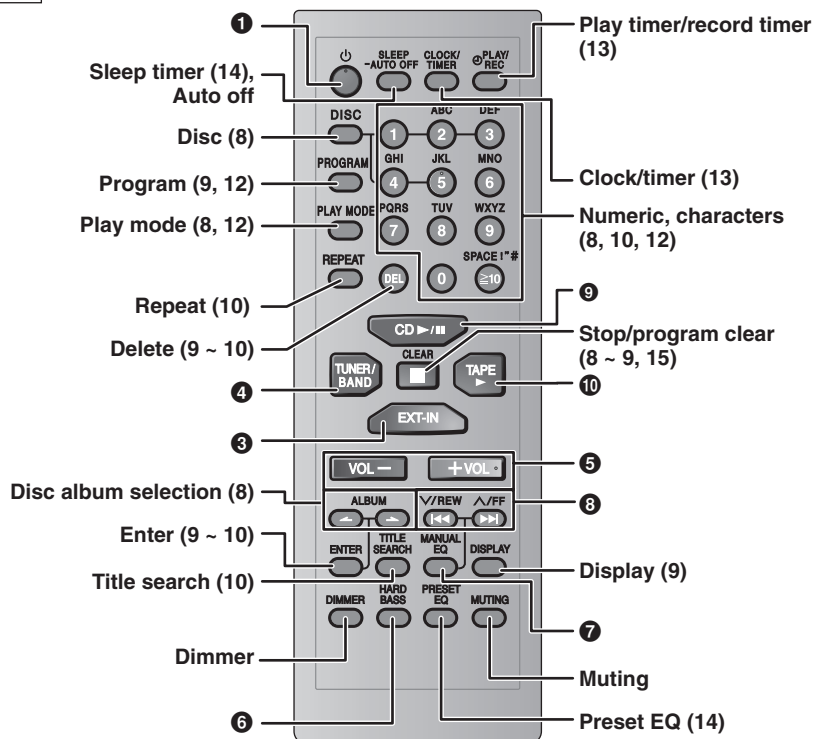
Remote control

Buttons such as ❶ function the same as the controls on the main unit.

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SLEEP -AUTO OFF

This auto off function allows you to turn off the unit in **disc, tape or USB** mode only after left unused for 10 minutes.

- Press and hold [-AUTO OFF] to activate the function.
- Press and hold [-AUTO OFF] again to cancel.
- The setting is maintained even if the unit is turned off.

DIMMER / **DIMMER**

To dim the display panel.

MUTING

To mute the sound.

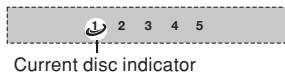
- Press the button to activate.
- Press again to cancel.



Basic play

- 1 Press [**▲**, OPEN/CLOSE] on the main unit to open the tray.
The unit turns on, load a disc in the current tray with the label facing up.
Press [**▲**, OPEN/CLOSE] to close the tray.

- 2 Press [**▶/II**, CD] to start play.
You can also press [DISC] and then [1] ~ [5] to select and play the other loaded discs.



Current disc indicator

| To | Action |
|--|--|
| stop play CLEAR | Press [■ , CLEAR] during play. MP3 Display when in the stop mode: Example: "MP3" indicates the disc contains MP3 files. Total number of albums Total number of tracks |
| pause play | Press [▶/II , CD] during play. Press again to resume play. |
| skip album ALBUM | MP3 Press [ALBUM (◀ or ▶)] to select the desired album during play or when in stop mode. Display when selecting in stop mode (example): Current album Number of tracks in current album <ul style="list-style-type: none">• This function does not work during 1-DISC RANDOM and ALL-DISC RANDOM mode. |
| skip tracks V/REW ^/FF | Press [◀◀ , V/REW] or [▶▶ , ^/FF]. <ul style="list-style-type: none">• During random play (➡ see right, "Play Mode function"), you cannot skip to tracks which have been played. MP3 During 1-ALBUM and 1-ALBUM RANDOM mode, track skipping can only be done within the current album. |
| search through tracks V/REW ^/FF | CD Press and hold [◀◀ , V/REW] or [▶▶ , ^/FF] during play or pause to search. <ul style="list-style-type: none">• During program play (➡ page 9), or random play (➡ see right, "Play Mode function"), you can search only within the track. |



Play Mode function

CD MP3

You can listen to specific discs and tracks.

Preparation

Select and play your desired disc.

Press [PLAY MODE] to select the desired mode.

| Mode | To play |
|---------------------------------|--|
| 1-DISC 1 DISC | one selected disc. |
| ALL-DISC ALL DISC | all loaded discs in succession from the selected disc to the final disc. Example: 4→5→1→2→3. |
| 1-TRACK 1-TR | one selected track on the selected disc. CD Press the numeric buttons to select the track in the current disc. Play starts from the selected track. |
| 1-ALBUM 1-ALB | MP3 Press [ALBUM (◀ or ▶)] to select the album. Press [◀◀ , V/REW] or [▶▶ , ^/FF], then the numeric buttons to select the track in the current album. Play starts from the selected track. |
| 1-DISC RANDOM 1 DISC RND | MP3 one selected album on the selected disc. Press [ALBUM (◀ or ▶)] to select the album. |
| 1- ALBUM RANDOM 1-ALB RND | MP3 all tracks in one selected album randomly. Press [ALBUM (◀ or ▶)] to select the album. |
| ALL-DISC RANDOM ALL DISC RND | all loaded discs randomly. |

When playback ends

The current play mode will be retained in memory until it is changed even if the unit is turned off.

Note:

You cannot use program mode together with "Play Mode function".



Changing multiple discs (MULTI CHANGE)

By main unit only

- 1 Press [**▲**, MULTI CHANGE] to open the trays.
- 2 Press the button repeatedly to check and change multiple discs.

Note:

- The tray with a disc being played will not open.
- If the player is stopped, all trays will open. To close the remaining trays simultaneously, press [**▲**, OPEN/CLOSE].

Changing a single disc (SINGLE CHANGE)

By main unit only

While one disc is playing, you can change the discs in other trays.

- 1 Press [▲, SINGLE CHANGE].
- 2 Press [▶, 1] ~ [▶, 5] to select the desired tray.
- 3 Change the disc.
- 4 Press [▲, SINGLE CHANGE] again to close the tray.

Checking the track information

CD

MP3

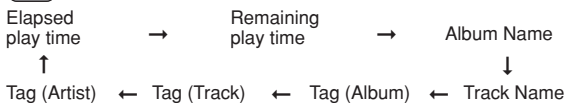
You can select a desired disc display mode.

Press [DISPLAY] during play or pause.

CD

Elapsed play time ↔ Remaining play time

MP3



Note:

CD

- When track number 25 or greater is playing, remaining play time display shows “--:--”.

MP3

- When a title is longer than 9 characters, it will scroll across the display. The scrolling will start after every 3 seconds.
- “NO TAG” is displayed if titles with tags have not been entered.
- Maximum number of displayable characters: approximately 32
- This unit can display album, track and artist name with MP3 ID3 tags (version 1.0 and 1.1).
- Titles containing text data that the unit does not support cannot be displayed.
- ID3 is a tag embedded in MP3 track to provide information about the track.
- Titles entered with 2-byte code cannot be displayed correctly on this unit.

Advanced play

Program play

CD

MP3

This function allows you to program up to 24 tracks.

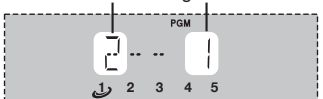
CD

- 1 Press [▶/II, CD] and then [■, CLEAR].
- 2 Press [PROGRAM].
“PGM” appears.
- 3 Press [DISC] and then [1] ~ [5] to select the disc.
- 4 Press the numeric buttons to select your desired track.
Repeat steps 3 to 4 to program other tracks.
- 5 Press [▶/II, CD] to start play.

MP3

- 1 Press [DISC] and then [1] ~ [5] to select the disc.
- 2 Press [■, CLEAR].
- 3 Press [PROGRAM].
- 4 Press [ALBUM (▲ or ▼)] to select your desired album.
To select an album directly, press the numeric buttons after pressing [ALBUM (▲ or ▼)].
- 5 Press [◀/REW] or [▶/FF] to select the track.
To select a track directly, press the numeric buttons after pressing [◀/REW] or [▶/FF].
- 6 Press [ENTER].
Repeat steps 4 to 6 to program other tracks.
- 7 Press [▶/II, CD] to start play.

For two-digit track, press [≥10] once then the two digits.
For three-digit track, press [≥10] twice then the three digits.

| To | Action |
|-----------------------------|---|
| cancel program mode | Press [PROGRAM] in the stop mode. |
| replay the program | Press [PROGRAM] then [▶/II, CD] in the stop mode. |
| add to the program | CD Repeat steps 3 to 4 in the stop mode. MP3 Repeat steps 4 to 6 in the stop mode. |
| check program contents | Press [◀/REW] or [▶/FF] when “PGM” is displayed in the stop mode. CD The track number, program order and disc number are displayed:  |
| clear the last track | Press [DEL] in the stop mode. |
| clear all programmed tracks | Press [■, CLEAR] in the stop mode. “CLEAR ALL” is displayed. Within 5 seconds, press the button again to clear all tracks. |

Note:

- You cannot program CD-DA together with MP3 tracks.
- The program memory is cleared when you change a disc or open the disc tray.
- You cannot program more than one disc.

REPEAT

Repeat play

CD MP3

You can repeat program play or other selected play mode.

Press [REPEAT].
“” is displayed.

To cancel

Press [REPEAT] again.
“” is cleared.

Note:

You can use repeat mode with “Program play” (→ page 9) and “Play Mode function” (→ page 8).

Advanced function (MP3 only)

TITLE SEARCH

Album /Track title search

This function enables you to search your desired album or track.

- 1 Press [▶/II, CD] and then [■, CLEAR].
- 2 For album title search, press [TITLE SEARCH] once. For track title search, press [TITLE SEARCH] twice.
- 3 Press the numeric buttons repeatedly to select your desired character then press [▶/II, ▲/FF] to key in the next character.
 - You can enter up to 8 characters.
 - To edit, press [◀◀, ▼/REW] or [▶▶, ▲/FF] to revise any characters.
 - To delete, move the cursor over the character and then press [DEL].

| Numbered Button | Characters |
|-----------------|--|
| ≥10 | space ! " # \$ % & ' () * + , - . / : ; = ? _ ` |

- You can search for “<” or “>” by entering “(” or “)”.
- The special characters will be displayed as below:

| Characters | Main unit display | Characters | Main unit display |
|------------|-------------------|------------|-------------------|
| ! | | , | |
| " | | - | |
| # | | . | |
| \$ | | / | |
| % | | : | |
| & | | ; | |
| ' | | = | |
| (| | ? | |
|) | | - | |
| * | | ` | |
| + | | | |

- Some characters may not be displayed correctly due to the recording format/software used.

- 4 Press [ENTER].
Press [◀◀, ▼/REW] or [▶▶, ▲/FF] to search for previous or next match.

The matched title is displayed.

Album title search

Blinks to indicate album title search mode



Matched album title

Track title search

Matched track title



Blinks to indicate track title search mode

- 5 Press [▶/II, CD] to start play from the album/track found.

Note:

This function does not work during any random/program mode.

NOTE on CDs

- This unit can access up to 99 tracks.
- Choose disc with this mark.



- This unit can play MP3 files and CD-DA format audio CD-R/RW that have been finalized.
- It may not be able to play some CD-R/RW due to the condition of the recording.
- Do not use irregularly shaped disc.
- Do not use disc with labels and stickers that are coming off or with adhesive exuding from under labels and stickers.
- Do not attach extra labels or stickers on the disc.
- Do not write anything on the disc.

Using DualDiscs

The “CD” sides of DualDiscs do not meet the CD-DA standard so it may not be possible to play them on this unit.

NOTE on MP3

- Files are treated as tracks and folders are treated as albums.
- This unit can access up to 999 tracks, 255 albums and 20 sessions.
- Disc must conform to ISO9660 level 1 or 2 (except for extended formats).
- To play in a certain order, prefix the folder and file names with 3-digits numbers in the order you want to play them.

When “NOT MP3/ERROR1” appears on the display, an unsupported MP3 format is being played. The unit will skip that track and play the next one.

Limitations on MP3 play

- If you have recorded MP3 on the same disc as CD-DA, only the format recorded in the first session can be played.
- Some MP3s may not be played due to the condition of the disc or recording.
- Recordings will not necessarily be played in the order you recorded them.

Cassette tape – Play and record

The buttons described for “Cassette tape - Play and record” are mainly for the main unit unless indicated otherwise.



Basic play

Use normal position tapes.

High position and metal position tapes can be played, but the unit will not be able to identify the characteristics of these tapes.

1 Press [▶, TAPE].

The unit turns on.

If a cassette was loaded, play starts automatically (One touch play).

2 Press [▲, OPEN] and insert the cassette.

Insert with the side to be played facing towards you and the exposed tape facing down. Close the holder by hand.

3 Press [▶, TAPE] to start play.

| To | Action |
|-------------------------|----------------------------------|
| stop tape playback | Press [■, STOP]. |
| | |
| fast-forward and rewind | Press [∇, REW/◀◀] or [△, FF/▶▶]. |
| | |

Note:

- Tapes exceeding 100 minutes are thin and can break or get caught in the mechanism.
- Tape slack can get caught up in the mechanism and should be wound up before the tape is played.

TPS (Tape Program Sensor)

This function enables you to search the beginning of up to a maximum of 9 tracks.

Press [∇, REW/◀◀] or [△, FF/▶▶] during play.

Play resumes from the track found.

Note:

- TPS may not operate correctly in the following situations:
- If the interval between tracks is less than 4 seconds.
 - If there is noise between tracks.
 - If there are silent parts within tracks.



Recording

Selection of tapes for recording

Use normal position tapes.

High position and metal position tapes can be used, but this unit will not be able to record or erase them correctly.

Preparation

Wind up the source tape so recording can begin immediately.

1 Press [▲, OPEN] and insert the cassette to be recorded.

Insert with the side to be recorded facing towards you and the exposed tape facing down.

2 Select the source to be recorded.

Radio recording:

Tune in the station. (→ page 12)

Disc recording:

① Insert the disc(s) you want to record.

Press [▶/||, CD] and then [■, STOP].

② Prepare the desired disc recording mode.

| To | Action |
|--------------------------|--|
| record programmed tracks | Perform steps 2 to 4 in “Program play” (→ page 9). |
| | Perform steps 3 to 6 in “Program play” (→ page 9). |

By remote control only

- record specific discs/tracks
- 1) Press [DISC] and then [1] ~ [5] to select the disc. Ensure disc is stopped.
 - 2) Press [PLAY MODE] to select the desired mode (→ page 8).
 - 3) For 1-ALBUM mode and 1-TRACK mode: Press [ALBUM (◀ or ▶)] to select the album.
 For 1-TRACK mode: Press [◀◀, ∇/REW] or [▶▶, △/FF] to select the track.

3 Press [●, REC] to start recording.

Other basic operations

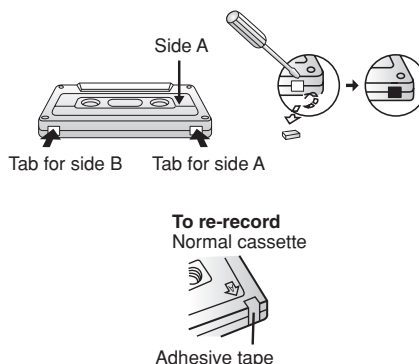
| To | Action |
|--------------------------------------|--|
| stop recording | Press [■, STOP]. |
| | |
| record on the other side of the tape | Turn the cassette over and press [●, REC]. |
| | |
| erase a recorded sound | 1) Press [▶, TAPE] and then [■, STOP]. 2) Insert the recorded cassette. 3) Press [●, REC]. |

Note:

Changes to volume and sound adjustments quality do not affect recording.

Erase prevention

The illustration shows how to remove the tabs to prevent recording. To record on the tape again, cover as shown.



FM/AM radio



PLAY MODE

Manual tuning

- 1 Press [TUNER/BAND] to select "FM" or "AM".
- 2 Press [PLAY MODE] to select "MANUAL".
- 3 Press [◀◀, √/REW] or [▶▶, ∧/FF] to select the frequency of the required station.

"ST" is displayed when a stereo FM broadcast is being received.

To tune automatically

Press and hold [◀◀, √/REW] or [▶▶, ∧/FF] until the frequency starts changing rapidly. The unit begins auto tuning, stopping when it finds a station.

- Auto tuning may be interrupted when there is excessive interference.
- To cancel auto tuning, press [◀◀, √/REW] or [▶▶, ∧/FF] once again.

PLAY MODE

To improve FM sound quality

Press and hold [PLAY MODE] to display "MONO".

To cancel

Press and hold [PLAY MODE] again until "MONO" disappears.

- MONO is also canceled if the frequency is changed.
- Turn off "MONO" for normal listening.



AM allocation setting

By main unit only

This system can also receive AM broadcasts allocated in 10 kHz steps.

To change the step from 9 kHz to 10 kHz

- 1 Press and hold [TUNER, FM/AM].
After a few seconds the display changes to a flashing display of the current minimum frequency.
- 2 Continue to hold down [TUNER, FM/AM].
 - When the minimum frequency changes, release the button. To return to the original step, repeat the above steps.
 - After changing the setting, previously preset frequency will be cleared.



Memory preset

20 FM and 15 AM stations can be preset.

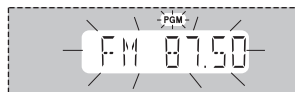
Preparation

Press [TUNER/BAND] to select "FM" or "AM".

PROGRAM

Automatic presetting

- 1 Tune to the frequency where presetting is to begin.
- 2 Press and hold [PROGRAM] to start presetting.



The tuner presets all the stations it can receive into the channels in ascending order. When finished, the last station memorized is tuned in.

PROGRAM

Manual presetting

- 1 Press [PLAY MODE] to select "MANUAL".
- 2 Press [◀◀, √/REW] or [▶▶, ∧/FF] to tune to the required station.
- 3 Press [PROGRAM].
- 4 Press the numeric buttons to select a channel.
For channels 10 to 20 press [≥10], then the two digits. The station occupying a channel is erased if another station is preset to that channel.

PLAY MODE

Selecting a preset station

Press the numeric buttons to select the channel.



OR

- 1 Press [PLAY MODE] to select "PRESET".
- 2 Press [◀◀, √/REW] or [▶▶, ∧/FF] to select the channel.

Microphone mixing

The buttons described for “Microphone mixing” are mainly for the main unit unless indicated otherwise.



Enjoying the microphone mixing

You can enjoy microphone mixing from various music sources (cassette, disc, radio or other external equipments).

- 1 Firstly, lower the volume with [MIC VOL], connect the microphone.
Plug type : Ø 3.5 mm monaural
- 2 Start playing the music source.
- 3 Adjust the volume with [VOLUME +] or [VOLUME -] and [MIC VOL] and sing along.

Note:

- If a strange noise (howling) is emitted during use, move the microphone away from the speakers, or turn down the microphone volume.
- When you are not using the microphone, disconnect it from the microphone jack, and turn down the microphone volume level to “MIN”.
- Sound adjustments can be made using microphone mixing but recording will not be affected.



Record microphone mixing

- 1 Press [▲, OPEN] and insert the cassette to be recorded.
Insert with the side to be recorded facing towards you and the exposed tape facing down.
- 2 Lower the volume with [MIC VOL], then connect the microphone.
- 3 Select the music source:

| | |
|---|--|
| When singing along with discs | Insert the desired disc (➡ page 8). |
| When singing along with radio | Select your desired station (➡ page 12). |
| When singing along from other external equipments | Connect and prepare the external equipment (➡ page 15) |

- 4 Press [●, REC] and start microphone mixing.



To record your voice

- 1 Press [▲, OPEN] and insert the cassette to be recorded.
- 2 Lower the volume with [MIC VOL], then connect the microphone.
- 3 Press [●, REC] to start recording.
- 4 Speak through the microphone and adjust the volume with [VOLUME +] or [VOLUME -] and [MIC VOL].

Timer



Setting the clock

This is a 24-hour clock.

- 1 Press [CLOCK/TIMER] to select “CLOCK”.
Each time you press the button:



- 2 (Within 8 seconds or so)
Press [◀◀, ∇/REW] or [▶▶, ∧/FF] to set the time.
- 3 Press [CLOCK/TIMER] to finish setting the time.

Displaying the clock

Press [CLOCK/TIMER] once when the unit is on or in standby mode.

The time is displayed for a few seconds.

Note:

Reset the clock regularly to maintain accuracy.



Using the play or record timer

You can set the timer to come on at a certain time to wake you up (play timer) or to record from the radio or the external equipment (record timer).

Play timer and record timer cannot be used together.

Turn the unit on and set the clock.

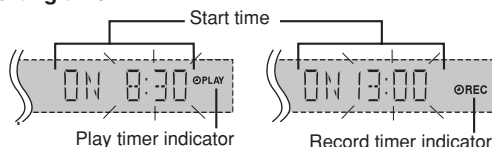
| Timer | Action |
|--------------|---|
| Play timer | Prepare the music source you want to listen to; cassette, disc number (1~5), radio or other external equipments, and set the volume. |
| Record timer | Check the cassette's erasure prevention tabs (➡ page 11), insert the cassette and tune to the radio station (➡ page 12) or select the external equipment (➡ page 15). |

- 1 Press [CLOCK/TIMER] to select the timer function.
Each time you press the button:



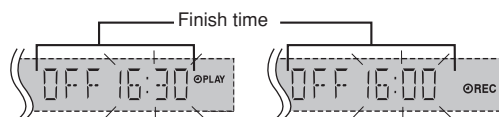
- ◉PLAY : to set the play timer
 - ◉REC : to set the record timer
- (Proceed to the next step **within 8 seconds**)

- 2 Press [◀◀, ∇/REW] or [▶▶, ∧/FF] to set the starting time.



- 3 Press [CLOCK/TIMER] to confirm.

- 4 Repeat steps 2 to 3 to set the finishing time.



Timer (continued)

To activate the timer

- 5** Press and hold [⊖PLAY/REC] to turn on your desired timer.



- 6** Press [⊕] to turn off the unit.
The unit must be off for the timers to operate.

Other basic operations

| To | Action |
|-----------------------------|--|
| change the settings | Repeat steps 1 to 4 and 6 (➡ see page 13 and above). |
| change the source or volume | 1) Press and hold [⊖PLAY/REC] to clear the timer indicator from the display. 2) Make changes to the source or volume. 3) Perform steps 5 to 6 (➡ see above). |
| check the settings | Press [CLOCK/TIMER] repeatedly to select ⊕PLAY or ⊕REC. |
| cancel | Press and hold [⊖PLAY/REC] to clear the timer indicators from the display. |

If you use the unit after the timers are set

After using, check that the correct tape/disc are loaded before turning the unit off.

Note:

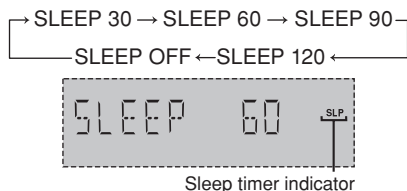
- The play timer will start at the preset time with volume increasing gradually to preset level.
- The record timer will start 30 seconds before the set time with the volume muted.
- The timer comes on at the set time everyday if the timer is on.
- The unit must be in the standby mode for the timer to function.
- If you turn the unit off and on again while a timer is functioning, the finish time setting will not be activated.
- If MUSIC PORT is selected as the source when the timer comes on, the system turns on and engages MUSIC PORT as the source. If you wish to playback or record from the portable audio equipment, just activate the equipment's play mode and increase the volume. (See the portable audio equipment's instruction manual.)



Using the sleep timer

This function enables you to turn off the unit automatically after the set time.

Press [SLEEP] to select your desired time.



To cancel

Press [SLEEP] to select "SLEEP OFF".

Changing the remaining time

Press [SLEEP] to show the remaining time and press [SLEEP] again to select your desired time.

Note:

- The play and sleep timer or the record and sleep timer can be used together.
- The sleep timer always has priority. Be sure not to overlap timer settings.
- The sleep timer turns off when you perform the record function.

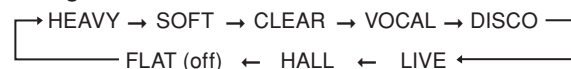
Sound adjustment

Selecting sound effects



Preset EQ

Press [PRESET EQ] repeatedly to select your desired setting.



| Setting | Effect |
|---------|--|
| HEAVY | Adds punch to rock |
| SOFT | For background music |
| CLEAR | Clarifies higher frequencies |
| VOCAL | Adds gloss to vocal |
| DISCO | Produces sound with the same kind of lengthy reverberations heard at a disco |
| LIVE | Makes vocals more alive |
| HALL | Adds an expansiveness to the sound to produce the atmosphere of a great concert hall |
| FLAT | No effect |



Manual EQ

- 1** Press [MANUAL EQ] repeatedly to select your desired setting.



| Setting | Effect |
|---------|------------------------|
| BASS | For lower pitch sound |
| MID | For middle pitch sound |
| TREBLE | For higher pitch sound |

- 2** Press [◀◀, √/REW] or [▶▶, ∧/FF] to adjust the level.

OR

Press [+] or [-] on the main unit to adjust the level.

Note:

- The level of the pitch is between -3 to +3.
- The changes you make are stored and automatically recalled the next time you select "MANUAL EQ".
- By main unit only AK450**
Press and hold [MANUAL EQ] to turn on or off the LED flashing.



Enhancing the bass sound

You can enhance low-frequency sound so that heavy bass sound can be heard clearly, even if the acoustics of your room are not optimal.

To activate

Press [HARD BASS].

To cancel

Press [HARD BASS] again.

Note:

The actual effect depends on the disc.

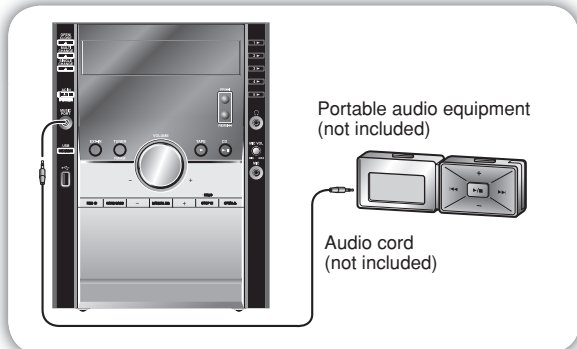
External unit

Connecting to a portable audio equipment

This feature enables you to enjoy music from a portable audio equipment.

Note:

All peripheral components and cables are sold separately.

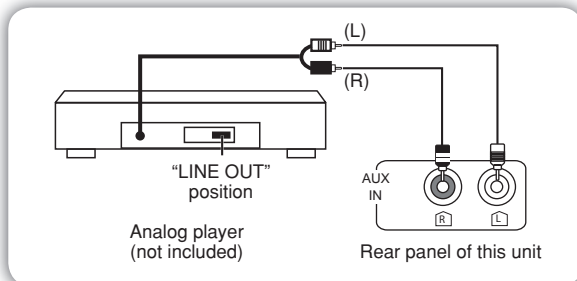


EXT-IN

Playing from a portable audio equipment

Switch off the equalizer function (if there is any) of the portable audio equipment before you plug into the MUSIC PORT jack. Otherwise, sound from the speaker may be distorted.

- 1 Plug the audio cord into the MUSIC PORT jack.
- 2 Press [EXT-IN] repeatedly until "MUSIC PORT" is displayed.
- 3 Play the portable audio equipment. (See the portable audio equipment's instruction manual.)



REC

Playing or recording from an external unit

You can connect to an analog player with a built-in phone equalizer.

- 1 Press [EXT-IN] repeatedly until "AUX" is displayed.
- 2 For listening : Proceed to step 3.
For recording : Press [●, REC] on the main unit to start recording.
- 3 Start playback from the external source.

Note:

- For details, refer to the instruction manual of the unit which is to be connected.
- When units other than those described above are to be connected, please consult your audio dealer.
- Sound distortion may occur when you use an adaptor other than the one supplied.

Connecting and playing a USB mass storage class device

AK450 AK350

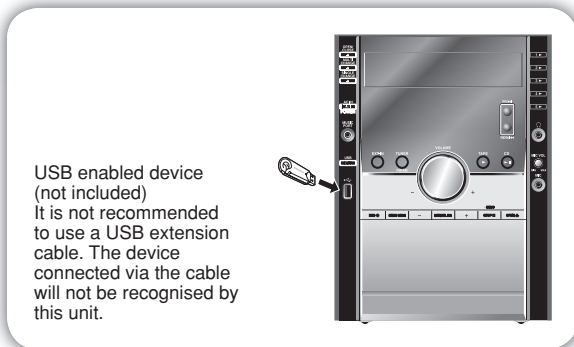
MP3

The USB connectivity enables you to connect and play MP3 tracks from USB mass storage class. Typically, USB memory devices. (Bulk only transfer)

Preparation

Before connecting any USB mass storage device to the unit, ensure that the data stored therein has been backed up.

It is not recommended to use a USB extension cable. The USB device is not recognised by this unit.



- 1 Reduce the volume and connect the USB mass storage device.
- 2 Press [▶/II, USB] to start play.

| To | Action |
|---------------------------|---|
| pause play USB ▶/II | Press [▶/II, USB]. Press again to resume play. |
| stop play CLEAR | Press [■, CLEAR]. "RESUME" is displayed. The position is memorized. Press [▶/II, USB] to resume. Press [■, CLEAR] again to clear the position. |
| skip tracks V/REW ^/FF | Press [◀◀, V/REW] or [▶▶, ^/FF]. |
| skip album ALBUM | Press [ALBUM (◀ or ▶)] in the play mode. Press [ALBUM (◀ or ▶)] once and then the numeric buttons in the stop mode. |

For other operating functions, they are similar as those described in "Discs" (⇒ page 8 ~ 10).

REC ●

Recording from a USB mass storage class device

- 1 Press [**◀◀**, **∨**/REW] or [**▶▶**, **∧**/FF] to select the desired track for recording.
- 2 Press [**●**, REC] on the main unit to start recording.

Compatible devices

Devices which are defined as USB mass storage class:

- USB devices that support bulk only transfer.
- USB devices that support USB 2.0 full speed.

Supported format

Files must have the extension “.mp3” or “.MP3”.

Note:

- CBI (Control/Bulk/Interrupt) is not supported.
- A device using NTFS file system is not supported [Only FAT 16/32 (File Allocation Table 16/32) file system is supported].
- Depending on the sector size, some files may not work.
- This unit can access up to 255 albums (including blank folders) and 2500 tracks.
- The maximum number of tracks in a folder are 999 tracks.
- Only one memory card will be selected when connecting a multiport USB card reader. Typically the first memory card inserted.
- Disconnect the USB card reader from the unit when you remove the memory card. Failure to do so may cause malfunction to the device.
- When you connect your digital audio player to the USB port, it charges all the time except in standby mode or during tape recording.

EXT-IN
○

Changing the main unit and remote control mode

The remote control and main unit are factory-set to “REMOTE 1” mode.

If your remote control affects other equipment during operation, you can switch to operate in “REMOTE 2” mode.

To switch to “REMOTE 2” mode

- 1 While pressing and holding [EXT-IN] on the main unit Press and hold [2] until “REMOTE 2” appears on the main unit display.
- 2 Press and hold [ENTER] and [2] for at least 2 seconds.

The main unit and remote control are now set to operate in “REMOTE 2” mode.

To return to “REMOTE 1” mode

Perform steps 1 and 2 above but use [1] instead of [2] for both steps. (“REMOTE 1” appears on the main unit during step 1.)

The remote control cannot work with the main unit if their modes are different.

“REMOTE 1” or “REMOTE 2” appears on the main unit display when you operate the remote control.*

※ If “REMOTE 1” appears (The main unit is in “REMOTE 1” mode.)

Press and hold [ENTER] and [1] on the remote control for at least 2 seconds.

If “REMOTE 2” appears (The main unit is in “REMOTE 2” mode.)

Press and hold [ENTER] and [2] on the remote control for at least 2 seconds.

Troubleshooting guide

Before requesting service, make the following checks. If you can't fix the system as described below, or if something not listed here occurs, refer to the enclosed directory to locate an Authorized Service Center convenient to you or contact your dealer.

Reference pages are shown as black circled numbers ❹.

Common problems

| | |
|---|--|
| Although the unit is in standby mode, the display lights up and changes continuously. | Turn off the demo function. ❹ If you set the clock, demo function will be turned off automatically. ❶❸ |
| No sound. Sound stops. | Turn the volume up. Switch off the unit, determine and correct the cause, then switch the unit on. Causes include straining of the speakers through excessive volume or power and using the unit in a hot environment. |
| Sound is unfixed, reversed or comes from one speaker only. | Check the speaker connections. ❹ |
| Humming heard during play. | An AC power supply cord or fluorescent light is near the cables. Keep other appliances and cords away from this unit's cables. |
| "ERROR" is displayed. | Incorrect operation performed. Read the instructions and try again. |
| "- -: -" appears on the display at standby mode. | You plugged the AC power supply cord in for the first time or there was a power failure recently. Set the time. ❶❸ |
| "F61" is displayed. | Check and correct the speaker cords connection. ❹ If this does not fix the problem, there is a power supply problem. Consult the dealer. |

Listening to the radio

| | |
|---|---|
| Noise is heard. The stereo indicator flickers or doesn't light. Sound is distorted. | Use an outdoor antenna. ❹ |
| A beat sound is heard. | Turn the TV off or separate it from the unit. |
| A low hum is heard during AM broadcast. | Separate the antenna from other cables and cords. |

When there is a television set nearby

| | |
|---|--|
| The picture on the TV disappears or stripes appear on the screen. | The location and orientation of the antenna are incorrect. If you are using an indoor antenna, change to an outdoor antenna. The TV antenna wire is too close to the unit. Separate the antenna wire of the TV set from the unit. |
|---|--|

Using the cassette deck

| | |
|----------------------------|--|
| Poor sound quality. | Clean the heads. ❶❸ |
| Recording is not possible. | If the erasure prevention tabs have been removed, cover the holes with adhesive tape. ❶❶ |

Playing discs

| | |
|--|--|
| The display is wrong or play won't start. | The disc may be upside down. ❸ Wipe the disc. Replace the disc if it is scratched, warped, or non-standard. Condensation may have formed inside the unit due to a sudden change in temperature. Wait for about an hour for it to clear and try again. |
| The total number of tracks displayed differs each time the same disc is inserted. Unusual sound is heard. | The disc may be scratched, or its data may be defective. Replace the disc. |
| CD-RW cannot be read. | The disc was incompletely formatted. Use the recording equipment to fully format the disc before recording. |
| "VBR-" is displayed instead of the remaining play time. | The unit cannot display the remaining play time for variable bit rate (VBR) tracks. |

Troubleshooting guide (continued)

Disc trays

| | |
|---|--|
| Disc tray(s) cannot open. "CHGR ERR" is displayed. | Press [⏻/I, POWER] to release the jammed tray(s) as the unit will switch off. Switch it on again and the tray(s) will initialize to the previous tray(s) condition. If this still does not fix the problem, please consult the dealer. |
|---|--|

Remote control

| | |
|-------------------------------------|---|
| Remote control doesn't work. | Check that the batteries are inserted correctly. ⑤ Replace the batteries if they are worn. |
|-------------------------------------|---|

USB

| | |
|--|---|
| No response when [●, REC] button is pressed. | Disconnect the USB device and then reconnect it back. Alternatively, turn the unit off and then back on. |
| The USB drive or its contents cannot be read. | The USB drive format or its contents is/are not compatible with the system. ⑩ The USB host function of this product may not work with some USB devices. USB devices with storage capacity of more than 8 gigabytes may not work in some instances. |
| Slow operation of the USB flash drive. | Large file size or high memory USB flash drive takes longer time to read. |
| "USB OVER CURRENT ERROR" | The USB mass storage device rating exceeds 500mA. Disconnect the USB device. Turn the unit off and then back on. |
| "NO PLAY" | Check the content. Only MP3 format files can be played. |

Memory reset (Initialization)

When the following situations occur, refer to the instructions below to reset the memory:

- There is no response when buttons are pressed.
- You want to clear and reset the memory contents.

To reset memory

1 Disconnect the AC power supply cord. (Wait at least 3 minutes before proceeding to step 2)

2 While pressing and holding down [⏻/I, POWER] on the main unit, reconnect the AC power supply cord.

"-----" appears on the display.

3 Release [⏻/I, POWER].

All the settings are returned to the factory preset.

You will need to reset the memory items.

Maintenance

If the surfaces are dirty

To clean this unit, wipe with a soft, dry cloth.

- Never use alcohol, paint thinner or benzene to clean this unit.
- Before using chemically treated cloth, read the instructions that came with the cloth carefully.

For a cleaner crisper sound (cassette deck)

Clean the heads regularly to assure good quality playback and recording. Use a cleaning tape (not included).

When moving the unit

- 1 Remove all discs.**
- 2 Press [⏻/I, POWER] to turn the unit off.**
- 3 Disconnect the AC power supply cord.**

Specifications

AMPLIFIER SECTION **AK450**

RMS output power

THD 10%, both channels driven

1 kHz

(Low channel)

115 W per channel (3 Ω)

10 kHz

(High channel)

115 W per channel (3 Ω)

Total Bi-Amp power

460 W

AMPLIFIER SECTION **AK350**

RMS output power

THD 10%, both channels driven

1 kHz

(Low channel)

112.5 W per channel (3 Ω)

10 kHz

(High channel)

112.5 W per channel (3 Ω)

Total Bi-Amp power

450 W

AMPLIFIER SECTION **AK250**

RMS Output power

THD 10%, both channels driven

1 kHz

115 W per channel (3 Ω)

Total output power

230 W

FM/AM TUNER, TERMINALS SECTION

Preset station

FM 20 stations

AM 15 stations

Frequency Modulation (FM)

Frequency range

87.50 to 108.00 MHz (50 kHz step)

Sensitivity

4.0 μV (IHF)

S/N 26 dB

2.2 μV

Antenna terminal(s)

75 Ω (unbalanced)

Amplitude Modulation (AM)

Frequency range

522 to 1629 kHz (9 kHz step)

520 to 1630 kHz (10 kHz step)

Sensitivity

560 μV/m

S/N 20 dB (at 999 kHz)

Audio performance (Amplifier)

Input sensitivity/Input impedance

250 mV, 14.7 kΩ

Aux

Music Port input jack

Terminal

Stereo, 3.5 mm jack

Sensitivity

100 mV, 4.7 kΩ

Phone jack

Terminal

Stereo, 3.5 mm jack

MIC jack

Terminal

Mono, 3.5 mm jack

Sensitivity

0.7 mV, 680 Ω

CASSETTE DECK SECTION

Track system

4 track, 2 channel

Heads

Record/playback

Solid permalloy head

Erasure

Double gap ferrite head

Motor

DC servo motor

Recording system

Erase system

AC bias 100 kHz

Tape speed

4.8 cm/s

Overall frequency response (+3 dB, -6 dB) at DECK OUT

NORMAL

35 Hz to 14 kHz

S/N Ratio

50 dB (A weighted)

Wow and flutter

0.18% (WRMS)

Fast forward and rewind time

Approx. 120 seconds with

C-60 cassette tape

DISC SECTION

Disc played [8 cm or 12 cm]

(1) CD-Audio (CD-DA)

(2) CD-R/RW (CD-DA, MP3 *formatted disc)

(3) MP3 *

*MPEG-1 Layer 3, MPEG-2 Layer 3

Bit rate

MP3

32 kbps to 320 kbps

Sampling frequency

MP3

32 kHz, 44.1 kHz, 48 kHz

CD-DA

44.1 kHz

Decoding

Digital filter

16 bit linear

D/A converter

MASH (1 bit DAC)

Pick up

Wavelength

780 nm

Beam Source

Semiconductor laser

Audio output (Disc)

Number of channels

2(Stereo) (FL, FR)

USB SECTION **AK450** **AK350**

Playable USB Storage Media

1) HDD

2) USB MP3 Player/Digital audio player

3) USB Thumbdrives

Supported audio file format

MP3 bit rate

USB memory port

Maximum current

500 mA

Bit rate

MP3

32 kbps to 320 kbps

Sampling frequency

MP3

32 kHz, 44.1 kHz, 48 kHz

Audio output (MP3)

Number of channels

2 channel

Frequency response (MP3)

20 Hz to 20 kHz (0+/-1.0 dB)

S/N Ratio

USB unit out

85 dB

SPEAKER SECTION **AK450**

Type

3 way, 3 speaker system (Bass reflex)

Speaker(s)

Woofer

16 cm cone type

Tweeter

6 cm cone type

Super tweeter

Piezo type

Impedance

HIGH

3 Ω

LOW

3 Ω

Input power (IEC)

HIGH

115 W (Max)

LOW

115 W (Max)

Output sound pressure level

88 dB/W (1.0 m)

Cross over frequency

1.5 kHz, 10 kHz

Frequency range

35 Hz to 24 kHz (-16 dB)

41 Hz to 27 kHz (-10 dB)

Dimensions (WxHxD)

232 x 373 x 226 mm

Mass

3.4 kg

SPEAKER SECTION **AK350**

Type

2 way, 2 speaker system (Bass reflex)

Speaker(s)

Woofer

16 cm cone type

Tweeter

6 cm cone type

Super tweeter

Piezo type

Impedance

HIGH

3 Ω

LOW

3 Ω

Input power (IEC)

HIGH

112.5 W (Max)

LOW

112.5 W (Max)

Output sound pressure level

87 dB/W (1.0 m)

Cross over frequency

2.6 kHz, 10 kHz

Frequency range

27 Hz to 27 kHz (-16 dB)

42 Hz to 23 kHz (-10 dB)

Dimensions (WxHxD)

219 x 330 x 228 mm

Mass

3.1 kg

SPEAKER SECTION **AK250**

Type

2 way, 2 speaker system (Bass reflex)

Speaker(s)

Woofer

16 cm cone type

Tweeter

6 cm cone type

Impedance

3 Ω

Input power (IEC)

115 W (Max)

Output sound pressure level

82 dB/W (1.0 m)

Cross over frequency

2 kHz

Frequency range

34 Hz to 30 kHz (-16 dB)

41 Hz to 35 kHz (-10 dB)

Dimensions (WxHxD)

219 x 330 x 196 mm

Mass

2.6 kg

GENERAL

Power supply

AC 110 to 127/220 to 240 V, 50/60 Hz

Power consumption

AK450 : 121 W

AK350 : 110 W

AK250 : 95 W

Dimensions (WxHxD)

250 x 330 x 323 mm

Mass

7.1 kg

Operating temperature range

+5 to +35 °C

Operating humidity range

5 to 90 % RH (no condensation)

Power consumption in standby mode:

0.7 W (Approx.)

Note:

1. Specifications are subject to change without notice.

Mass and dimensions are approximate.

2. Total harmonic distortion is measured by the digital spectrum analyzer.

3. **AK450** **AK350** The labels "HIGH" and "LOW" on the rear of the speakers refer to High frequency and Low frequency.

